R E P O R T  R E S U M E S

ED 010 898 CG 000 025

A DEMONSTRATION STUDY TO DETERMINE THE EFFECT ON ACADEMIC FERFORMANCE OF GIVING HIGH SCHOOL TEACHERS BACKGROUND INFORMATION ON HIGH-FOTENTIAL LOW-ACHIEVING STUDENTS.

BY- SMITH, GLENN E. AND OTHERS
DETROIT FUBLIC SCHOOLS, MICH.
MICHIGAN ST. DEFT. OF FUBLIC INSTR., LANSING

FUB DATE 63

EDRS FRICE MF-$0.09 HC-$0.76 19F.

DESCRIFTORS- *STUDENT TEACHER RELATIONSHIF, HIGH SCHOOLS, *UNDERACHIEVERS, *SELF CONCEFT, *ACADEMIC FERFORMANCE, ACHIEVEMENT TESTS, GRADE FOINT AVERAGE, TEACHERS, *STUDENTS, DETROIT, LANSING

A GROUF OF HIGH-FOTENTIAL (UFFER QUARTILE ON STANDARDIZED TESTS), LOW-ACHIEVING (2.0 OR BELOW GRADE FOINT AVERAGE) STUDENTS IN FOUR DETROIT FUBLIC HIGH SCHOOLS WERE STUDIED FOR FIVE SEMESTERS. THE SAMFLE OF 585 STUDENTS WAS DIVIDED INTO THREE GROUFS. TWO GROUFS WERE CONSIDERED THE CONTROL. IN THE QUASI-CONTROL GROUF, THE TEACHERS WERE GIVEN THE NAMES OF THE UNDERACHIEVERS. IN THE TRUE CONTROL GROUFS, THE TEACHERS DID NOT KNOW THE UNDERACHIEVERS. IN THE EXFERIMENTAL GROUFS, TEACHERS WERE FROVIDED WITH BACKGROUND INFORMATION OBTAINED BY FUFIL QUESTIONNAIRES. THE HYFOTHESIS WAS THAT TEACHER AWARENESS OF SUCH STUDENTS WOULD FRODUCE IMFROVED ACADEMIC FERFORMANCE AND IMFROVED SELF-FEELING. BASED ON THE STATISTICAL COMFARISONS OF THE SAMFLE WITH THE TWO CONTROL GROUFS, THE RESEARCHERS CONCLUDED THAT (1) BACKGROUND INFORMATION MAY NOT ELIMINATE A NEGATIVE REACTION OF THE TEACHER TO THE UNDERACHIEVER, (2) SUCH STUDENTS MAY BETTER BE CALLED NONFERFORMERS, AND (3) SUCH STUDENTS ARE NOT LIKELY TO CHANGE IN THE TRADITIONAL CLASSROOM ENVIRONMENT. IMFLICATIONS ARE THAT COUNSELING OF UNDERACHIEVING STUDENTS IS LIMITED IN USEFULNESS AND SUCH STUDENTS WOULD BE BETTER SERVED IN A NONDIRECTIVE CLASSROOM. (NS)

# A DEMONSTRATION STUDY TO DETERMINE THE EFFECT ON ACADEMIC PERFORMANCE OF GIVING HIGH SCHOOL TEACHERS BACKGROUND INFORMATION ON HIGH-POTENTIAL LOW-ACHIEVING STUDENTS

*Conducted by*

THE GUIDANCE AND COUNSELING DEPARTMENT
OF THE DETROIT PUBLIC SCHOOLS

under contract with
THE DEPARTMENT OF PUBLIC INSTRUCTION
OF THE STATE OF MICHIGAN

as authorized by
TITLE V-A OF
THE NATIONAL DEFENSE EDUCATION ACT OF 1958
(Sec. 143.26) (P.L. 85-864)

DR. SAMUEL M. BROWNELL, *Superintendent, Detroit Public Schools*

GEORGE H. BAKER, *Assistant Superintendent, Child Accounting and Adjustment*

Project Director: GLENN E. SMITH, *Chief of Guidance Services Division, Department of Public Instruction*

Project Coordinator: DR. RICHARD H. DRESHER, *Assistant Director, Guidance and Counseling Department*

Investigator: JOHN F. PETERSON, *Counselor*

# A DEMONSTRATION STUDY TO DETERMINE THE EFFECT ON ACADEMIC PERFORMANCE OF GIVING HIGH SCHOOL TEACHERS BACKGROUND INFORMATION ON HIGH-POTENTIAL LOW-ACHIEVING STUDENTS

*Conducted by*

THE GUIDANCE AND COUNSELING DEPARTMENT
OF THE DETROIT PUBLIC SCHOOLS

under contract with

THE DEPARTMENT OF PUBLIC INSTRUCTION
OF THE STATE OF MICHIGAN

as authorized by

TITLE V-A OF
THE NATIONAL DEFENSE EDUCATION ACT OF 1958
(Sec. 143.26) (P.L. 85-864)


DR. SAMUEL M. BROWNELL, *Superintendent, Detroit Public Schools*

GEORGE H. BAKER, *Assistant Superintendent, Child Accounting and Adjustment*

Project Director: GLENN E. SMITH, *Chief of Guidance Services Division, Department of Public Instruction*

Project Coordinator: DR. RICHARD H. DRESHER, *Assistant Director, Guidance and Counseling Department*

Investigator: JOHN F. PETERSON, *Counselor*

## TABLE OF CONTENTS

# I. INTRODUCTION

The academically able student who fails to make satisfactory progress in school has long been a concern to educators. Interest in the "underachiever," as such students have come to be known, has grown in the post-war years, stimulated in part by Soviet advances in science. Today, research and experimentation continue, but an adequate answer to the problem is yet to appear.

Various reports indicate that poor achievement among talented students is not uncommon. Krugman (25) found that half the high ability students in a New York school were functioning below expected levels. Wolfle (43) reports that of those high school students who rank in the top third in intelligence, only 45 per cent graduate from college. In terms of their potential contributions, these low-achieving youth represent a serious loss, both to society and to themselves.

# II. RELATED RESEARCH

By drawing on the body of research that has been directed to this problem, it is possible to assemble a generalized picture of the underachiever and to make inferences about how he might be helped.

## A. DESCRIPTION OF THE UNDERACHIEVER

It has frequently been alleged that the underachiever's poor performance is a manifestation of his maladjustment (29). For example, Horrall (18) states that underachievement among brilliant students is a symptom of deep-seated personality problems. Pierce (32), too, found that high achievers tended to be better adjusted. Others have shown better performance among better adjusted students (2), and a higher correlation between grades and aptitude test scores for the "normal" as compared to the "maladjusted" (19).

Studies of self concept show that the underachiever feels less positive about himself than the high achiever, especially in those qualities associated with scholastic success (22, 35, 37). The high achiever describes himself by such adjectives as *stable, dependable, clear-thinking, intelligent,* and *reliable,* while the low achiever chooses, *reckless, stubborn, mischievous, argumentative, rebellious,* and *unambitious.*

There are differences in the self concepts of achievers and non-achievers, and, it is hypothesized, the individual behaves in a manner congruent with his self image. Thus, underachievers do not anticipate high marks (15). Brookover (5) found that high-achieving students have a higher concept of their ability than do low-achieving students of comparable measured intelligence. Roth (34) concludes that lack of progress in school does not arise from inability to achieve but is an expression of choice, based on the needs of the self system.

Hostility is a key character trait that has been observed in the makeup of the underachiever (23, 24). Academic failure may communicate this underlying anger. Denied overt expression, the hostility finds outlet in resistance to the demands of the teacher.

Conflict with school has been well documented: The underachiever has a negative attitude toward school (1) and is frequently referred for disciplinary infractions (12). He is critical of educational methodology (26), poorly adjusted to school rules and procedures (16), less willing to conform to classroom routines and regulations (6).

He also lacks diligence. Achievers spend more time in study (3). The underachiever may be handicapped by poor study habits (30). But he also procrastinates, daydreams, is unable to concentrate (6, 13, 39).

The underachieving student does not get on with teachers (11). He sees them as parent-surrogates and acts out with them the conflict he experiences with his parents (14). Teachers, in turn, resent his attitude and his lack of effort (42). Antagonism on both sides interferes with scholastic progress.

Nevertheless, learning takes place. Underachievers selected on the basis of grade point average often are found to score very well on standardized achievement tests (33, 36). It appears that the source of the problem lies in the classroom situation rather than in learning difficulties.

## B. HELPING THE UNDERACHIEVER

There is abundant evidence that changing the pattern of behavior known as underachievement is not a facile undertaking (8, 9, 10). Individual counseling is often recommended as a logical treatment on the grounds that emotional problems interfere with adequate functioning. Yet, the studies are not encouraging. Several experiments show little or no gain as a consequence of exposure to counseling (7, 17, 31). Group counseling, too, appears to be appropriate for the underachiever, but carefully controlled studies have failed to show change (4).

Some of the tactics commonly used by teachers to encourage non-performing students have been evaluated. The teacher-student interview has in some cases, produced improvement in academic performance and in non-intellectual factors associated with scholastic success (27, 38). Experiments with grouping have led to better work (15, 21).

Of particular interest is a report by Whitely (41) of the use of therapeutic teaching to reduce the conflicts

which block scholastic attainment in some students. The experimenter conducted a class by using the techniques of non-directive counseling, such as acceptance and understanding. He sought to avoid the assigning, directing, coercing, urging, forbidding, threatening behaviors which are part of the traditional teacher role and which appear to invoke maladjustive behavior in some students. As a consequence of this treatment, the experimental subjects achieved significantly higher grades, became warmer to the instructor and to each other, and had a higher rate of retention in school.

Finally, researches by Hoyt (20), by Ojemann and Wilkinson (28), and by Sturgis (40) are concerned with the effects produced by helping teachers to know more about students. Increased teacher knowledge of students appears to create subtle changes in the pupil-teacher relationship, for, in each of these experiments, students gained in achievement and rated their instructors more favorably. It appears that when teachers know their students, they become more effective guides for learning.

### C. SUMMARY OF RESEARCH

From this brief survey, certain pertinent conclusions may be derived.

1. The underachiever has distinctive personality characteristics and unique needs. His self concept, his attitudes, and his values are different from those of the high achiever. Of particular importance is the hostility toward adult authority.
2. The personality of the underachiever often brings him into conflict with the school. The teacher can become a target for his unconscious agressions. Rigid school procedures feed and encourage the problem.
3. An accepting teacher and a non-threatening classroom atmosphere help the child whose learning is hampered by dependence-independence conflict. When teachers are helped to know more about students, changes occur in both teachers and students.

## III. RATIONALE OF THE STUDY

The conclusions drawn from previous research provide a framework for an attack on the problem of underachievement. Since giving teachers information about students changes the ordinary student-teacher interaction, such a procedure suggests an approach for working with under-achieving students.

The purpose of this research was to study the effects of giving teachers information about high-potential, low-achieving students. It was predicted that this information would make the teacher more aware of the selected student, more concerned, more understanding of student problems. The teacher should, as a consequence, seek ways of helping the low-achieving student to improve his performance.

The research hypothesis was stated as follows:

*Identifying a group of high-potential, low-achieving students and supplying information about them to their teachers will produce student improvement in academic performance and in self feelings.*

In four Detroit schools, students operationally defined as high-potential and low-achieving were identified. Pupil information, gathered by a questionnaire designed for this purpose, was distributed to the teachers of members of the experimental group. This treatment was begun in the second half of the tenth grade and continued for the next five semesters, until the expected time of graduation for these students. The effects of this technique were assessed through comparisons between experimentals and no-treatment controls, using achievement tests, grade point average, and a self concept index.

## IV. DEFINITION OF HIGH-POTENTIAL LOW-ACHIEVING

The operational definition of high-potential and low-achieving was determined after a survey of comparable studies. For purposes of this research, a student was considered "high-potential" if he scored above percentile 75 on the tenth grade *School and College Ability Test* (SCAT). "Low-achieving" was defined as a grade point average of 2.0 (based on A = 4) for the first semester of the tenth grade.

Students who rank in the upper quartile of the ability distribution are commonly considered academically able and capable of attaining the 3.0 GPA required by many colleges. The selection criteria of this research, therefore, consist of an aptitude test as an index of ability and GPA as a measure of achievement.

## V. SELECTION OF THE SAMPLE

Four Detroit high schools were chosen for this study. Each is in a different administrative district, and each serves a different neighborhood population. In January of 1962, it was possible to obtain the SCAT scores and the first semester marks for those who had begun the tenth grade the previous September. The operational definition selected a sample of 585 high-potential, low-achieving students in the four schools (see Table 1).

TABLE 1

NUMBER OF HIGH POTENTIAL STUDENTS IDENTIFIED AS LOW ACHIEVING

| School | No. High Potential | No. Low Achieving | Percent Low Achieving |
|---|---|---|---|
| A | 516 | 148 | 28% |
| B | 281 | 102 | 36% |
| C | 551 | 193 | 35% |
| D | 292 | 142 | 48% |
| Total.... | 1,640 | 585 | 36% |

About one third of the high ability students were found to be under-achieving by the definition of this research. A mean grade point average and SCAT score for the selected population is given in Table 2:

TABLE 2

MEAN GRADE POINT AVERAGE AND MEAN SCAT TOTAL FOR EACH SCHOOL

| School | No. High Potential Low Achievers | Mean G.P.A. | Mean SCAT Total |
|---|---|---|---|
| A | 148 | 1.59 | 296.9 |
| B | 102 | 1.54 | 295.9 |
| C | 193 | 1.47 | 296.5 |
| D | 142 | 1.43 | 295.2 |
| Total Mean | | 1.50 | 296.1 |

The SCAT score of 296 is above percentile 85, and the 1.5 GPA is between C and D.

## VI. ASSIGNMENT OF GROUPS

By use of a table of random numbers, the selected sample of students were assigned to three groups of approximately equal size in each school:

### GROUP 1—EXPERIMENTAL

The members of this group were identified to their teachers as high-potential, low-achieving students. Personal information about them, obtained from a questionnaire, was distributed to teachers, who were urged to use the information as an aid in understanding the student and in helping him improve his scholastic performance.

### GROUP 2—QUASI-CONTROL

The members of this group were identified to their teachers as high-potential, low-achieving students. However, their names were merely listed; no information about them was supplied to the teachers.

### GROUP 3—TRUE CONTROL

The members of this group were not identified to their teachers.

These groupings were devised to assess the effects of different treatments; identification and information, identification only, and no treatment.

## VII. DATA COLLECTION

The following instruments were used to obtain data and to evaluate the effects of the experiment:

A. The *School and College Ability Test* (SCAT) was used as a measure of scholastic aptitude. Level 2, Form A of this test is administered to 10th grade students and Level 2, Form B, to 12th grade students in Detroit schools.

B. The *Sequential Tests of Educational Progress* (STEP) was used as a standardized measure of scholastic achievement. This series is administered to 10th and 12th grade students in Detroit along with the SCAT.

C. Grade point average was also used as a measure of scholastic achievement. It was computed for academic subjects only, beginning in the 10th grade and continuing for 5 subsequent semesters.

D. Student information was gathered by means of a questionnaire designed for this purpose. It consisted of 72 items for obtaining information in several cate-

gories; age, sex, place of birth; home and family; interests and activities; relation to school and teachers; future plans; health; self attitudes and concerns.

E. The Bills *Index of Adjustment and Values* was used as a measure of self concept. This instrument consists of 37 trait words on which the student rates himself in three different ways. The score for Column I (*How much of the time this statement is like you*) is a measure of Self Concept. Column II (*How you feel about yourself*) is a measure of Self Attitude. Column III (*How you would like to be*) is a measure of Self Ideal. The difference between Columns I and III, a "D-score," gives an index of the discrepancy between Self Concept and Ideal Self. A second part of the *Index*, the "Others" page, gives the student's rating of his peers on these same variables.

## VIII. PROCEDURES

In four Detroit schools, those tenth grade students who scored above percentile 75 on SCAT and whose GPA for the first semester was 2.0 or lower were designated as high-potential, low-achieving students and selected as the sample for this study. Personal information about the selected students was gathered by means of a questionnaire. This was condensed onto a Student Information Form and distributed to those teachers who had a member of the Experimental Group in class. Teachers were given only the names of members of the Quasi-Control Group, no personal information. True Controls were not identified.

It was assumed that the information would enable a teacher to be more effective with these particular students. At the end of each semester, the information forms were collected. As soon as the current schedule became available, the information was sent to the student's new teachers, together with teacher comments and the grade point average for the previous semester. This treatment began in the second semester of the tenth grade and continued for five semesters, until the expected time of graduation.

The effects of this experiment were measured by grade point average, by the STEP series, and by the Bills *IAV*. It was hypothesized that as a result of the procedure of this study, the Experimental Group would exceed the Controls of all these measures.

## IX. SUMMARY OF DATA

### A. QUESTIONNAIRE DATA

The questionnaire which was designed to obtain student information was administered to all who were deemed high-potential in the four schools, a total of 1,519 students. The responses of high- and low-achieving students were compared and analyzed statistically by the chi-square test. The following questionnaire items disclosed significant differences between the responses of high-achieving and low-achieving students:

1. In regard to *sex, age, and place of birth,* the low achiever . . .
   - #6 Is predominantly male
   - #7 Is slightly older than his classmates (male)
   - #8 Is more often born outside Detroit (male)
2. In regard to *home and family conditions,* the low achiever . . .
   - #11 Is less likely to have a father engaged in professional work (male and female)
   - #11 Is less likely to have a father engaged in semi-professional or managerial work (male)
   - #11 Is more likely to have a father engaged in manual work (male)
   - #15 Is an only child or has three or more siblings (male)
   - #54 Considers parents more strict (female)
   - #55 Has arguments with parents about school (male and female)
   - #56 Reports parents use scolding and punishment (male)
   - #56 Reports parents have unreasonable expectations (female)
   - #56 Reports parents are critical of school progress (male and female)
   - #57 Reports parents have been to school because of marks or behavior (male and female)
   - #63 Has more problems with siblings (female)
3. In regard to *interests and activities,* the low achiever . . .
   - #18 Is less interested in scholarly pursuits (male and female)
   - #18 Is more interested in skills and hobbies (male)
   - #20 Feels less talent for scholarship (male and female)
   - #20 Feels more talent for mechanical work (male)
   - #20 Feels more talent for creative arts (female)
   - #21 Takes fewer music, art, or dance lessons (male and female)

#23 Expects to own a car before graduation (male and female)
#58 Feels superior at making friends (female)
#59 Goes out more evenings (male and female)
#61 Reports fewer problems making friends (male)
#62 Dates more regularly (male and female)

4. In regard to *school,* the low-achiever . . .
   #24 Participates less in school activities (male and female)
   #26 Prefers English and social studies (male and female)
   #27 Dislikes math and science (male and female)
   #29 Spends less time in daily study (male and female)
   #30 Spends less time in weekend study (male and female)
   #32 Has no definite study plan (male)
   #33 Finds it hard to concentrate (male and female)
   #35 Relates scholastic trouble to lack of study and poor study habits (male and female)
   #36 Gets along well with teachers (male and female)
   #39 Feels handicapped by lack of interest in school (male)
   #40 Has been in trouble in school (male and female)
   #42 Feels teachers could be improved (female)
5. In regard to *future plans,* the low achiever . . .
   #43 Is less likely to be planning on college (male and female)
   #46 Hopes to go farther in school than the father went (male)
   #47 Is less likely to be planning on a profession (male)
   #48 Is less likely to see profession as eventual job (male)
   #49 Is not confident of reaching occupational goal (male)
   #50 Feels poor marks will block occupational goal (male and female)
   #51 Is less inclined to discuss future plans with parents (male)
6. In regard to *health,* the low achiever . . .
   #66 Is more likely to smoke (male and female)
7. In regard to *self attitudes and concerns,* the low achiever . . .
   #69 Considers school a chief problem (male and female)
   #70 Discusses problems less (female)
   #72 Feels less satisfied with self (male)

## B. SELF CONCEPT DATA

The data on self concept were obtained from the Bills *Index of Adjustment and Values* which was administered to low achievers and a sample of high achievers in the tenth grade, and as a post-test to low achievers in the twelfth grade. Basically, this instrument consists of trait words on which the student rates himself; the higher the rating, the more positive the self feeling.

The mean scores are reported in Table 3. High achievers attain higher scores in each of the areas, indicating a more positive self regard. However, not all the differences are statistically meaningful.

The following significant differences appeared:

1. Male high-achievers have a higher Self Ideal score.
2. Female high-achievers have a high Self Concept and Self Attitude and a smaller discrepancy between Self Concept and Ideal Self.

An analysis of the ratings for each trait word disclosed differences between the responses of low- and

TABLE 3

COMPARISON OF SCORES ON THE BILLS INDEX OF ADJUSTMENT AND VALUES BETWEEN HIGH- AND LOW-ACHIEVING GROUPS

MALE

| Category | | Low Achievers | | | High Achievers | | | t |
|---|---|---|---|---|---|---|---|---|
| | | Number | Mean | S.D. | Number | Mean | S.D. | |
| "Self" | Self Concept..... | 293 | 136.3 | 15.7 | 27 | 139.7 | 11.9 | 1.1 |
| | Self Attitude..... | | 134.9 | 19.0 | | 141.8 | 15.7 | 1.8 |
| | Self Ideal..... | | 160.4 | 13.6 | | 166.2 | 10.2 | 2.2* |
| | D-score..... | | 30.2 | 11.4 | | 30.1 | 12.8 | .04 |
| "Others" | Self Concept..... | | 134.7 | 18.2 | | 137.1 | 16.7 | .6 |
| | Self Attitude..... | | 137.8 | 16.6 | | 139.7 | 14.7 | .5 |
| | Self Ideal..... | | 154.0 | 15.7 | | 156.0 | 17.5 | .6 |
| | D-score..... | | 24.6 | 14.1 | | 22.7 | 14.4 | .6 |

*—Significant at .05 level.

| | Category | Low Achievers | | | High Achievers | | | t |
|---|---|---|---|---|---|---|---|---|
| | | Number | Mean | S.D. | Number | Mean | S.D. | |
| | | | FEMALE | | | | | |
| "Self" | Self Concept..... | 180 | 139.2 | 14.7 | 55 | 145.0 | 12.9 | 2.6** |
| | Self Attitude..... | | 134.1 | 19.0 | | 141.8 | 17.0 | 2.7** |
| | Self Ideal..... | | 165.2 | 11.4 | | 166.5 | 10.1 | .7 |
| | D-score..... | | 31.1 | 12.8 | | 25.8 | 9.0 | 2.9** |
| "Others" | Self Concept..... | | 138.2 | 16.1 | | 139.6 | 18.1 | .5 |
| | Self Attitude..... | | 137.7 | 17.0 | | 140.9 | 15.0 | 1.3 |
| | Self Ideal..... | | 158.6 | 14.3 | | 160.7 | 13.9 | 1.0 |
| | D-score..... | | 24.4 | 11.1 | | 24.2 | 9.9 | .1 |

**—Significant at .01 level.

high-achievers. In every case, this difference in response was the result of the tendency of the high-achiever to select higher scale numbers, indicating a more positive regard for self and others and a higher level of self aspiration, and by a converse tendency of the low-achiever to select lower scale numbers, indicating a less positive regard for self and others and a lower level of aspiration.

Twenty-one of the thirty-seven trait words evoked significantly different responses from high and low achievers in one or more of the rating columns. These were the following: *active, alert, cheerful, cooperative, courteous, dependable, faithful, friendly, generous, helpful, honest, intelligent, loyal, neat, obedient, patient, polite, quiet, studious, truthful, understanding.*

Sixteen of the trait words did not evoke significantly different responses: *careful, considerate, democratic, happy, humorous, interesting, kind, playful, sharing, sincere, sociable, tactful, thoughtful, thrifty, trustworthy, unselfish.*

An anlysis of the individual column responses reveals the following: The male low-achiever sees himself as less *intelligent,* and less *studious* than the high-achiever. He is less satisfied with himself in several qualities: *alert, cheerful, honest, loyal, studious,* and *truthful.* However, he is not striving to change. It is the high-achieving male who seeks perfection, whose Self Ideal rating shows that he wants to be more *cooperative, courteous, friendly, honest, obedient, truthful,* and *understanding.*

The female low-achiever has a statistically lower Self Concept and Self Attitude. She rates herself lower in many traits: *active, alert, dependable, helpful, neat, obedient, patient, quiet, studious.* Her Self Ideal is like that of the high achiever, with one exception: the high achiever wishes to be more *obedient.*

Thus, high achieving males and females perceive themselves as having desirable traits to a higher degree. Furthermore, their ideals are set higher. They seem anxious to acquire qualities which may be considered socially-approved or conforming.

The low achiever, on the other hand, has different attitudes. The boy is not so eager to be *cooperative, courteous, understanding;* the girl does not yearn to be considered *obedient.* These particular words point to important differences between these groups. They suggest that the low-achiever is less docile, less tractable, less bent on pleasing the adult.

## C. ACHIEVEMENT DATA

The standardized achievement and aptitude test data were obtained from the scores on the STEP-SCAT series which is administered to all Detroit high school students in the tenth grade and in the twelfth grade.

The students defined as "high-potential" for this experiment were selected on the criterion of a score of 290 or above on the SCAT, which marked the 75 percentile. Means for the 585 high-potential, low-achieving students on the tenth grade STEP-SCAT set, together with the percentile ranks as given in the test manuals, appears in Table 4. The selected students rank in the upper

TABLE 4

TENTH GRADE STEP-SCAT MEAN SCORES AND PERCENTILE RANKS FOR THE SELECTED HIGH-POTENTIAL, LOW-ACHIEVING STUDENTS

| | Test | No. | Mean | Percentile Rank |
|---|---|---|---|---|
| STEP | Math..... | 583 | 280.8 | 77 |
| | Science..... | 578 | 282.0 | 72 |
| | Social Studies | 578 | 281.8 | 78 |
| | Reading..... | 583 | 299.7 | 78 |
| | Listening.... | 290 | 294.3 | 75 |
| | Writing..... | 582 | 290.3 | 79 |
| SCAT | Verbal..... | 585 | 289.0 | 82 |
| | Quantitative. | 585 | 305.5 | 82 |
| | Total..... | 585 | 296.0 | 87 |

quartile of the distribution both in aptitude (as measured by SCAT) and in achievement (as measured by STEP). Thus, although these students were termed "low-achieving" in regard to grade point average, their standardized test scores place them in the upper 25 per cent on national norms.

The twelfth grade scores for this same group (less those lost through dropout and transfer) are reported in Table 5. These scores are at about the same rank as the tenth grade scores, indicating that growth and learning have continued.

Those high-potential students who were *not* low-achieving were termed "Average Achievers" if their GPA ranged from 2.1 - 2.9, and "High Achievers" if the GPA was 3.0 or higher. The tenth grade STEP-SCAT scores for Low Achievers, Average Achievers, and High Achievers are compared in Table 6. Both Average and High Achievers attain higher mean scores than Low Achievers on every section of STEP and SCAT, and these differences are significant at the .001 level. High-potential low-achieving students rank in the upper 25 per cent; but high-potential, high-achieving students rank significantly higher in both aptitude and achievement.

TABLE 5

TWELFTH GRADE STEP-SCAT MEAN SCORES AND PERCENTILE RANKS FOR SELECTED HIGH-POTENTIAL, LOW-ACHIEVING STUDENTS

| | Test | No. | Mean | Percentile Rank |
|---|---|---|---|---|
| STEP | Math..... | 434 | 288.7 | 79 |
| | Science..... | 435 | 290.0 | 76 |
| | Social Studies | 435 | 291.8 | 79 |
| | Reading..... | 436 | 308.2 | 78 |
| | Listening.... | * | | |
| | Writing..... | 434 | 301.5 | 78 |
| SCAT | Verbal..... | 435 | 296.0 | 82 |
| | Quantitative. | 435 | 309.7 | 81 |
| | Total..... | 435 | 301.8 | 83 |

*—Listening test not administered in twelfth grade.

TABLE 6

MEAN TENTH GRADE STEP-SCAT SCORES FOR LOW, AVERAGE, AND HIGH ACHIEVERS

| Test | GROUP 1-3 Low Achievers | | | GROUP 4 Average Achievers | | | GROUP 5 High Achievers | | |
|---|---|---|---|---|---|---|---|---|---|
| | Number | Mean | S.D. | Number | Mean | S.D. | Number | Mean | S.D. |
| **STEP** | | | | | | | | | |
| Math..... | 583 | 280.8 | 8.7 | 487 | 283.9* | 9.5 | 512 | 286.4* | 10.6 |
| Science..... | 578 | 282.0 | 10.4 | 487 | 284.4* | 10.8 | 511 | 286.7* | 11.5 |
| Social Study... | 578 | 281.8 | 8.9 | 485 | 286.2* | 10.1 | 511 | 290.9* | 10.6 |
| Read..... | 583 | 299.7 | 9.6 | 487 | 304.4* | 9.4 | 512 | 308.6* | 9.5 |
| Listen..... | 290 | 294.3 | 12.4 | 275 | 299.0* | 14.0 | 245 | 301.8* | 13.8 |
| Write..... | 582 | 290.3 | 11.3 | 484 | 297.0* | 11.5 | 510 | 302.3* | 11.9 |
| **SCAT** | | | | | | | | | |
| Verbal..... | 585 | 289.0 | 7.5 | 488 | 291.9* | 8.6 | 512 | 295.3* | 9.9 |
| Quant..... | 585 | 305.5 | 9.0 | 488 | 309.9* | 9.0 | 512 | 314.2* | 10.1 |
| Total..... | 585 | 296.0 | 5.3 | 488 | 299.3* | 6.6 | 512 | 302.9* | 7.8 |

*Difference from score of Low Achievers significant at .001 level.

## D. GRADE POINT AVERAGE DATA

The report card marks for each of the high- and low-achieving students were collected from school records at the end of each semester, beginning in the tenth grade and continuing for three years to the end of the twelfth grade.

Only final marks in academic subjects were used. Grade point average was computed on the basis of A = 4, B = 3, C = 2, D = 1, E = 0. Grade point average for each of the six semesters is contained in Table 7. Both male and female high-potential, low-achieving students end the first half of the tenth grade with the GPA of about 1.5, midway between a C and a D. For those who remain in school, the average gradually improves until in the last half of the twelfth grade it is 2.0 for males and 2.5 for females. Some of this improvement is probably a result of the loss of students who transfer or quit school.

The GPA for Average Achievers and High Achievers is reported in Table 8. A clear pattern emerges: Students tend to maintain a highly consistent GPA through the three years of high school. It appears, therefore, that the child's pattern of scholastic performance is established prior to high school and continues at the same level.

TABLE 7

GRADE POINT AVERAGE FOR MALE AND FEMALE HIGH-POTENTIAL, LOW-ACHIEVERS

| Grade | Sex | No. | Mean | S.D. |
|---|---|---|---|---|
| 10B | Male..... | 357 | 1.4 | .4 |
| | Female..... | 228 | 1.5 | .4 |
| 10A | Male..... | 348 | 1.6 | .6 |
| | Female..... | 217 | 1.8 | .5 |
| 11B | Male..... | 316 | 1.6 | .6 |
| | Female..... | 190 | 1.9 | .7 |
| 11A | Male..... | 298 | 1.8 | .7 |
| | Female..... | 181 | 2.1 | .6 |
| 12B | Male..... | 279 | 1.8 | .7 |
| | Female..... | 177 | 2.3 | .7 |
| 12A | Male..... | 269 | 2.0 | .6 |
| | Female..... | 165 | 2.4 | .5 |

TABLE 8

GRADE POINT AVERAGE FOR AVERAGE ACHIEVERS AND HIGH ACHIEVERS

| Grade | Sex | Average Achievers | | | High Achievers | | |
|---|---|---|---|---|---|---|---|
| | | Number | Mean | S.D. | Number | Mean | S.D. |
| 10B | Male..... | 247 | 2.4 | .2 | 227 | 3.3 | .3 |
| | Female..... | 241 | 2.4 | .2 | 285 | 3.3 | .3 |
| 10A | Male..... | 246 | 2.4 | .5 | 227 | 3.2 | .5 |
| | Female..... | 235 | 2.5 | .5 | 280 | 3.0 | .5 |
| 11B | Male..... | 236 | 2.3 | .7 | 221 | 3.2 | .5 |
| | Female..... | 217 | 2.6 | .5 | 269 | 3.0 | .5 |
| 11A | Male..... | 229 | 2.4 | .7 | 218 | 3.1 | .6 |
| | Female..... | 213 | 2.5 | .6 | 265 | 3.0 | .6 |
| 12B | Male..... | 221 | 2.5 | .6 | 215 | 3.1 | .5 |
| | Female..... | 212 | 2.8 | .5 | 258 | 3.1 | .5 |
| 12A | Male..... | 218 | 2.6 | .6 | 214 | 3.0 | .6 |
| | Female..... | 199 | 2.7 | .5 | 256 | 3.1 | .5 |

## E. THE EFFECT OF THE EXPERIMENT

The purpose of this experiment was to assess the effects of supplying teachers with information about high-potential low-achieving students. It was assumed that this information would change the usual pattern of student-teacher interaction. Specifically, it was expected that the teacher would become interested in the student, would want to know more about him, and would try to help him overcome his malfunctioning.

The research hypothesis was formulated as follows: *Identifying a group of high-potential low-achieving students and supplying information about them to their teachers will produce student improvement in academic performance and in self feelings.*

According to the data which were collected, this hypothesis was *not* confirmed:

1. The pre-and post-scores for the Bills *Index of Adjustment and Values* are contained in Tables A and B of the Appendix. There is some variation in the scores of the three groups of high-potential low-achievers, but no consistent pattern appears. The self concept of the experimental students did not improve over that of the controls.
2. The tenth and twelfth grade STEP-SCAT scores for the three groups of high-potential low-achievers are contained in Tables C and D of the Appendix. Use of the "t" technique to compare Group 1 to 2, 1 to 3, and 2 to 3 disclosed only one difference. Group 2 students ranked lower than Group 3 students on STEP Math in the tenth grade and on SCAT Quantitative in the twelfth grade. The experimental students made no gain over controls in achievement.
3. The grade point averages for the three groups of high-potential low-achievers are given in Table E and F of the Appendix. There are no significant differences in the averages of any of the groups. They are, in fact, remarkably uniform. The experimental students did not gain over controls in grade point average.

# X. CONCLUSIONS AND IMPLICATIONS

The data that were gathered through the procedures of this study lead to certain conclusions about the underachiever.

A. About one-third of the students who rank in the upper quartile of the ability distribution were found to be underachieving by the definition of this research (GPA = 2.0 or lower). The prognosis for improvement in marks is slight; in the twelfth grade the mean GPA for this group was only slightly above 2.0. At the same time, attrition is high. Twenty-five per cent of the original group of 585 students were lost by dropout or transfer during the term of this study.

B. If standardized tests such as STEP are used as a measure of achievement, these students score at a level commensurate with their aptitude. This selected group of students scored near the 75th percentile on every section of STEP in both the tenth and the twelfth grades. This indicates that growth and learning occur. These students, though able, do not perform satisfactorily in class and fail to earn good grades. It is on this basis that they may be termed "underachievers."

C. Questionnaire and self concept index results indicate that the able low achiever has personality and attitudinal characteristics which set him apart from the high achiever. The low achiever appears to be less conforming, less fond of schools and teachers. For this reason, he does not fit well in the traditional classroom, and he is likely to arouse teacher antagonism.

D. There is evidence that teacher reaction to this project was, on the whole, quite positive. A questionnaire survey disclosed that most of the teachers thought the plan had value and that the information helped them to know the students better and to direct special attention to them. The teachers relied largely on friendly encouragement as a means of helping. When this did not produce change, a certain amount of antagonism toward the student may have been generated.

E. Teacher reaction to the high-potential low-achieving student tends to be negative. The attitudes of the low achiever are unlike those of the teacher. The low achiever is rejected, either openly or covertly. Teacher comments collected in this research were frequently judgmental — "lazy" was the most common epithet. The low achiever is subject to unfavorable comparison with the high achiever.

F. The behavior of the underachiever is not a superficial phenomenon; it is part of his basic self structure. As such, it resists change. There is, indeed, no certainty that the personality structure of this student will ever change.

G. Supplying teachers with information about students is probably a good guidance tactic. It creates interest; it helps the teacher to know his pupils and to understand their problem. But this teacher interest is not force enough to produce personality change. Attempts to encourage, cajole, or demand better work from the underachiever probably have little effect and may serve to create teacher frustration. Simple acceptance may be the best technique.

## XI. RECOMMENDATIONS

There is one overwhelming conclusion that emerges from the evidence of this research: Because the pattern of personality which is manifested by the high-potential low-achiever does not produce the preferred classroom behavior, his talents are largely wasted. It appears, therefore, that the school is guilty of rejection toward a segment of our able youth by requiring that all must fit a prescribed mold or else be deemed failures.

Previous research, focusing on changing the underachiever, may have been aimed in the wrong direction. For, this youth isn't an *underachiever;* he's a *non-performer.* What he needs is an environment in which he will be able to use his abilities.

In other words, it may be more feasible to change the classroom than to change the student. There is a clear need for techniques that will enable all kinds of children to learn. Instead of condemning the underachiever and demanding that he change, the school should find a place for him.

In addition, it appears that counseling offers but limited usefulness as a remedy for underachievement. If this syndrome is a basic personality pattern, it will not be altered by the efforts of the school counselor.

The non-directive classroom, as described by Whiteis, looks like a more promising technique for use with underachievers. This method, which avoids the traditional authoritarian-teacher role, frees some students from the hampering effects of conflict and enables them to perform more adequately. Similarly, programmed materials should be valuable for the student who does

TABLE A

PRE-TEST SCORES FOR THREE GROUPS OF HIGH-POTENTIAL LOW-ACHIEVERS ON BILLS IAV

"SELF"

| MALE | Self Concept | | | Self Attitude | | | Self Ideal | | | D-Score | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. |
| GROUP I..... | 114 | 138.2 | 14.2 | 114 | 138.6 | 17.9 | 114 | 160.3 | 14.2 | 114 | 28.7 | 10.2 |
| GROUP II..... | 56 | 134.9 | 15.2 | 56 | 132.2 | 20.3 | 56 | 160.5 | 11.4 | 56 | 31.4 | 12.3 |
| GROUP III..... | 123 | 135.2 | 17.0 | 123 | 132.8 | 18.7 | 123 | 160.4 | 13.9 | 123 | 31.0 | 11.8 |

"OTHERS"

| MALE | Self Concept | | | Self Attitude | | | Self Ideal | | | D-Score | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. |
| GROUP I..... | 114 | 135.5 | 16.9 | 114 | 138.2 | 15.7 | 114 | 154.1 | 16.1 | 114 | 23.4 | 12.9 |
| GROUP II..... | 56 | 135.7 | 17.0 | 56 | 137.5 | 16.8 | 56 | 154.0 | 13.9 | 56 | 24.0 | 12.5 |
| GROUP III..... | 123 | 133.4 | 19.7 | 123 | 137.5 | 17.1 | 123 | 154.0 | 16.1 | 123 | 25.9 | 15.6 |

"SELF"

| FEMALE | Self Concept | | | Self Attitude | | | Self Ideal | | | D-Score | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. |
| GROUP I..... | 76 | 139.6 | 14.7 | 76 | 137.2 | 18.9 | 76 | 165.6 | 10.4 | 76 | 30.7 | 13.2 |
| GROUP II..... | 40 | 138.4 | 16.5 | 40 | 129.3 | 19.2 | 40 | 166.8 | 11:8 | 40 | 33.0 | 15.0 |
| GROUP III..... | 64 | 139.2 | 13.4 | 64 | 133.5 | 18.5 | 64 | 163.8 | 12.1 | 64 | 30.5 | 13.4 |

"OTHERS"

| FEMALE | Self Concept | | | Self Attitude | | | Self Ideal | | | D-Score | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. |
| GROUP I..... | 76 | 139.3 | 17.2 | 76 | 141.3 | 19.1 | 76 | 158.3 | 16.2 | 76 | 24.0 | 12.1 |
| GROUP II..... | 40 | 138.0 | 15.5 | 40 | 132.8 | 13.9 | 40 | 160.8 | 11.2 | 40 | 26.1 | 10.5 |
| GROUP III..... | 64 | 137.1 | 15.2 | 64 | 136.4 | 15.0 | 64 | 157.6 | 13.6 | 64 | 23.7 | 10.2 |

not function in the classroom. Well-planned experimentation would disclose to what extent underachievement is the result of student-teacher interaction.

Finally, inquiry should be directed into the area of cognition itself. Perhaps there are differences in the cognitive styles of high- and low-achievers, differences in their way of perceiving, learning, experiencing. Evidence could help to shape a structure for the learning experiences which the school provides.

The gifts of some young people need special conditions for optimum growth. To insist that all must follow teacher direction and control may be too rigid a philosophy.

TABLE B

POST-TEST SCORES FOR THREE GROUPS OF HIGH-POTENTIAL LOW-ACHIEVERS ON BILLS IAV

"SELF"

| MALE | Self Concept | | | Self Attitude | | | Self Ideal | | | D-Score | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. |
| GROUP I..... | 77 | 139.1 | 14.0 | 77 | 135.4 | 19.7 | 77 | 160.9 | 12.1 | 77 | 26.4 | 12.0 |
| GROUP II..... | 41 | 136.4 | 13.9 | 41 | 128.5 | 20.3 | 41 | 158.4 | 11.6 | 41 | 28.9 | 13.6 |
| GROUP III..... | 99 | 138.5 | 14.7 | 99 | 135.2 | 19.5 | 99 | 159.3 | 15.5 | 99 | 29.1 | 12.4 |

"OTHERS"

| MALE | Self Concept | | | Self Attitude | | | Self Ideal | | | D-Score | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. |
| GROUP I..... | 77 | 131.6 | 13.9 | 77 | 132.3 | 17.1 | 77 | 151.4 | 13.5 | 77 | 22.9 | 11.8 |
| GROUP II..... | 41 | 132.2 | 16.3 | 41 | 128.8 | 17.0 | 41 | 146.7 | 21.4 | 41 | 22.1 | 14.1 |
| GROUP III..... | 99 | 135.0 | 16.6 | 99 | 135.5 | 15.9 | 99 | 152.7 | 17.3 | 99 | 23.7 | 14.2 |

"SELF"

| FEMALE | Self Concept | | | Self Attitude | | | Self Ideal | | | D-Score | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. |
| GROUP I..... | 56 | 142.3 | 12.4 | 56 | 137.6 | 17.2 | 56 | 162.9 | 14.3 | 56 | 27.2 | 10.8 |
| GROUP II..... | 28 | 138.5 | 17.2 | 28 | 129.2 | 20.1 | 28 | 160.8 | 11.4 | 28 | 28.8 | 15.1 |
| GROUP III..... | 48 | 141.6 | 13.9 | 48 | 133.4 | 18.6 | 48 | 167.0 | 9.6 | 48 | 27.7 | 10.8 |

"OTHERS"

| FEMALE | Self Concept | | | Self Attitude | | | Self Ideal | | | D-Score | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. |
| GROUP I..... | 56 | 138.3 | 16.4 | 56 | 138.7 | 16.5 | 56 | 158.0 | 13.7 | 56 | 23.5 | 13.4 |
| GROUP II..... | 28 | 127.5 | 21.0 | 28 | 126.4 | 18.9 | 28 | 149.7 | 18.1 | 28 | 27.1 | 18.1 |
| GROUP III..... | 48 | 137.5 | 18.5 | 48 | 136.7 | 18.2 | 48 | 159.9 | 16.4 | 48 | 24.3 | 15.5 |

## TABLE C

### COMPARISON OF MEAN TENTH GRADE STEP-SCAT SCORES FOR THREE GROUPS OF HIGH-POTENTIAL, LOW-ACHIEVING STUDENTS

| TEST | GROUP 1 Experimental | | | GROUP 2 Quasi-Control | | | GROUP 3 Control | | |
|---|---|---|---|---|---|---|---|---|---|
| | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. |
| Math | 190 | 280.3 | 9.6 | 196 | 279.9 | 8.6 | 197 | 282.1* | 7.7 |
| Science | 188 | 282.7 | 10.3 | 192 | 280.7 | 10.2 | 198 | 282.7 | 10.4 |
| Social Studies | 188 | 281.9 | 9.0 | 193 | 281.5 | 9.0 | 197 | 282.0 | 8.6 |
| Reading | 189 | 299.7 | 9.8 | 196 | 300.0 | 9.3 | 198 | 299.2 | 9.6 |
| Listening | 97 | 293.5 | 10.4 | 96 | 295.5 | 14.3 | 97 | 293.8 | 12.1 |
| Writing | 189 | 289.4 | 11.1 | 195 | 290.9 | 11.8 | 198 | 290.6 | 10.9 |
| Verbal | 191 | 289.0 | 7.9 | 196 | 288.6 | 7.2 | 198 | 289.3 | 7.5 |
| Quantitative | 191 | 305.0 | 8.9 | 196 | 305.0 | 9.2 | 198 | 306.5 | 8.9 |
| Total | 191 | 295.8 | 5.5 | 196 | 295.5 | 4.9 | 198 | 296.5 | 5.3 |

*Difference from Group 2 significant at .001 level.

## TABLE D

### COMPARISON OF MEAN TWELFTH GRADE STEP-SCAT SCORES FOR THREE GROUPS OF HIGH-POTENTIAL, LOW-ACHIEVING STUDENTS

| TEST | GROUP 1 Experimental | | | GROUP 2 Quasi-Control | | | GROUP 3 Control | | |
|---|---|---|---|---|---|---|---|---|---|
| | No. | Mean | S.D. | No. | Mean | S.D. | No. | Mean | S.D. |
| Math | 141 | 288.0 | 8.3 | 142 | 289.0 | 8.7 | 151 | 289.0 | 8.2 |
| Science | 142 | 291.2 | 10.5 | 142 | 289.1 | 10.0 | 151 | 289.7 | 10.3 |
| Social Studies | 141 | 290.7 | 10.1 | 142 | 292.3 | 8.9 | 152 | 292.5 | 9.5 |
| Reading | 142 | 308.0 | 9.0 | 142 | 307.9 | 10.0 | 152 | 308.6 | 9.0 |
| Listening | * | | | | | | | | |
| Writing | 140 | 300.8 | 11.4 | 142 | 301.9 | 11.8 | 152 | 301.9 | 12.1 |
| Verbal | 141 | 295.8 | 7.7 | 142 | 295.7 | 7.1 | 152 | 296.5 | 7.2 |
| Quantitative | 141 | 309.3 | 10.5 | 142 | 308.2 | 11.4 | 152 | 311.4** | 9.6 |
| Total | 141 | 301.5 | 6.6 | 142 | 301.2 | 6.5 | 152 | 302.7 | 6.0 |

*Listening test not administered in twelfth grade.
**Difference from Group 2 significant at .001 level.

TABLE E

COMBINED GRADE POINT AVERAGE OF HIGH-POTENTIAL, LOW-ACHIEVING GROUPS IN THE FOUR SCHOOLS

MALE

| Grade | Group | No. | Mean | S.D. |
|---|---|---|---|---|
| 10B | 1. Experimental..... | 115 | 1.4 | .4 |
| | 2. Quasi-Control.... | 113 | 1.4 | .5 |
| | 3. Control..... | 129 | 1.4 | .4 |
| | TOTAL..... | 357 | 1.4 | .4 |
| 10A | 1. Experimental..... | 114 | 1.7 | .6 |
| | 2. Quasi-Control.... | 109 | 1.6 | .6 |
| | 3. Control..... | 125 | 1.6 | .6 |
| | TOTAL..... | 348 | 1.6 | .6 |
| 11B | 1. Experimental..... | 98 | 1.7 | .6 |
| | 2. Quasi-Control.... | 98 | 1.6 | .7 |
| | 3. Control..... | 120 | 1.7 | .7 |
| | TOTAL..... | 316 | 1.6 | .6 |
| 11A | 1. Experimental..... | 89 | 1.7 | .7 |
| | 2. Quasi-Control.... | 92 | 1.7 | .6 |
| | 3. Control..... | 117 | 1.8 | .7 |
| | TOTAL..... | 298 | 1.8 | .7 |
| 12B | 1. Experimental..... | 83 | 1.8 | .8 |
| | 2. Quasi-Control.... | 88 | 1.8 | .6 |
| | 3. Control..... | 108 | 1.9 | .7 |
| | TOTAL..... | 279 | 1.8 | .7 |
| 12A | 1. Experimental..... | 79 | 2.0 | .7 |
| | 2. Quasi-Control.... | 87 | 1.9 | .6 |
| | 3. Control..... | 103 | 2.0 | .6 |
| | TOTAL..... | 269 | 2.0 | .6 |

TABLE F

COMBINED GRADE POINT AVERAGE OF HIGH-POTENTIAL, LOW-ACHIEVING GROUPS IN THE FOUR SCHOOLS

FEMALE

| Grade | Group | No. | Mean | S.D. |
|---|---|---|---|---|
| 10B | 1. Experimental..... | 84 | 1.6 | .4 |
| | 2. Quasi-Control.... | 75 | 1.4 | .4 |
| | 3. Control..... | 69 | 1.6 | .3 |
| | TOTAL..... | 228 | 1.5 | .4 |
| 10A | 1. Experimental..... | 83 | 1.8 | .5 |
| | 2. Quasi-Control.... | 69 | 1.9 | .6 |
| | 3. Control..... | 65 | 1.9 | .5 |
| | TOTAL..... | 217 | 1.8 | .5 |
| 11B | 1. Experimental..... | 71 | 1.9 | .6 |
| | 2. Quasi-Control.... | 61 | 2.0 | .7 |
| | 3. Control..... | 58 | 1.8 | .7 |
| | TOTAL..... | 190 | 1.9 | .7 |
| 11A | 1. Experimental..... | 70 | 2.1 | .6 |
| | 2. Quasi-Control.... | 55 | 2.1 | .6 |
| | 3. Control..... | 56 | 2.0 | .6 |
| | TOTAL..... | 181 | 2.1 | .6 |
| 12B | 1. Experimental..... | 69 | 2.3 | .7 |
| | 2. Quasi-Control.... | 54 | 2.5 | .6 |
| | 3. Control..... | 54 | 2.2 | .6 |
| | TOTAL..... | 177 | 2.3 | .7 |
| 12A | 1. Experimental..... | 64 | 2.3 | .6 |
| | 2. Quasi-Control.... | 50 | 2.5 | .5 |
| | 3. Control..... | 51 | 2.4 | .5 |
| | TOTAL..... | 165 | 2.4 | .5 |

## BIBLIOGRAPHY


1. Barrett, Harry O. "An Intensive Study of 32 Gifted Children," *Personnel and Guidance Journal*, XXXVI (November, 1957), 192-194.
2. Berger, Irving L., and Sutker, Alvin R. "The Relationship of Emotional Adjustment and Intellectual Capacity to Academic Achievement of College Students," *Mental Hygiene*, XL (January, 1956), 65-77.
3. Boyce, E. M. "A Comparative Study of Overachieving and Underachieving College Students on Factors Other Than Scholastic Aptitude." Unpublished Ed. D. dissertation, University of Wisconsin, 1956.
4. Broedel, J. W., *et al.* "The Effects of Group Counseling on Gifted Underachieving Adolescents," *Journal of Counseling Psychology*, VII (Fall, 1960), 163-70.
5. Brookover, Wilbur B., Paterson, Ann, and Thomas, Shailer, *Self-Concept of Ability and School Achievement*. East Lansing, Michigan: Michigan State University, 1962.
6. Brown, William F., Abeles, Norman, and Iscoe, Ira. "Motivational Differences Between High and Low Scholarship College Students," *Journal of Educational Psychology*, XLV (April, 1954), 215-23.
7. Calhoun, S. R. "Effect of Counseling on a Group of Underachievers," *School Review*, LXIV (October, 1956), 312-16.
8. Drews, Elizabeth, (ed.). *Guidance for the Academically Talented Student*. Washington: National Education Association, 1961.
9. Drews, Elizabeth Monroe, and Teahan, John E. "Parental Attitudes and Academic Achievement," *Journal of Clinical Psychology*, XIII (October, 1957), 328-32.
10. Fliegler, Louis A. "Understanding the Underachieving Gifted Child," *Psychological Reports*, III (December, 1957), 533-36.
11. Ford, T. R. "Social Factors Affecting Academic Performance: Further Evidence," *School Review*, LXV (Winter, 1957), 415-22.
12. Frankel, Edward. "A Comparative Study of Achieving and Underachieving High School Boys of High Intellectual Ability," *Journal of Educational Research*, LIII (January, 1960), 172-80.
13. Gerberich, J. R. "Factors Related to the College Achievement of High-Aptitude Students Who Fail of Expectation and Low-Aptitude Students Who Ex-

ceed Expectations," *Journal of Educational Psychology*, XXXII (April, 1941), 253-65.

14. Golburgh, Stephen J., and Penney, James F. "A Note on Counseling Underachieving College Students," *Journal of Counseling Psychology*, IX (Summer, 1962), 133-39.
15. Goldberg, Miriam, and Passow, A. H. "Study of Underachieving Gifted," *Educational Leadership*, XVI (November, 1958), 121-25.
16. Granzow, Kent R. "A Comparative Study of Underachievers, Normal Achievers, and Overachievers in Reading." Unpublished Ph. D. dissertation, State University of Iowa, 1954.
17. Guthrie, George M., and O'Neill, Harry W. "Effects of Dormitory Counseling on Academic Achievement," *Personnel and Guidance Journal*, XXXI (February, 1953), 307-09.
18. Horrall, Bernice M. "Academic Performance and Personality Adjustments of Highly Intelligent College Students," *Genetic Psychology Monographs*, LV (February, 1957), 3-83.
19. Hoyt, Donald P., and Norman, Warren T. "Adjustment and Academic Predictability," *Journal of Counseling Psychology*, I (Summer, 1954), 96-99.
20. Hoyt, Kenneth B. "A Study of the Effects of Teacher Knowledge of Pupil Characteristics on Pupil Achievement and Attitudes Toward Classwork," *Journal of Educational Psychology*, XLVI (May, 1955), 302-10.
21. Karnes, Merle B., *et al.* "The Efficacy of Two Organizational Plans for Underachieving Intellectually Gifted Children," *Exceptional Children*, XXIX (May, 1963), 438-46.
22. Kehas, Chris D. "Underachievement as a Function of Self Concept." Paper read at APGA Convention, Boston, Massachusetts, 1963, 8.
23. Kimball, Barbara. "The Sentence-Completion Technique in a Study of Scholastic Underachievement," *Journal of Consulting Psychology*, XVI (October, 1952), 353-58.
24. Kirk, Barbara. "Test Verses Academic Performance in Malfunctioning Students," *Journal of Consulting Psychology*, XVI (June, 1952), 213-16.
25. Krugman, Morris. "Identification and Preservation of Talent," *Teachers College Record*, LXI (May, 1960), 459-63.
26. Lum, Mabel K. "A Comparison of Under- and Over-Achieving Female College Students," *Journal of Educational Psychology*, LI (June, 1960), 109-14.
27. Moore, Mary R., and Popham, W. James, "Effects of Two Interviews Techniques on Academic Achievement," *Journal of Counseling Psychology*, VII (Fall, 1960), 176-79.
28. Ojemann, Ralph H., and Wilkinson, Frances R. "The Effect on Pupil Growth of an Increase in Teacher's Understanding of Pupil Behavior," *Journal of Experimental Education*, VIII (December, 1939), 143-47.
29. Owens, William A., and Johnson, Wilma C. "Some Measured Personality Traits of Collegiate Underachievers," *Journal of Educational Psychology*, XL (January, 1959), 41-46.
30. Parks, Anne B. "Do They Know How to Study?" *The School Counselor*, XI (December, 1963), 119-21.
31. Patterson, C. H. "A Comparison of Counseled and Non-Counseled Industrial School Students," *Journal of Applied Psychology*, XLI (August, 1957), 240-42.
32. Pierce, James V. "The Educational Motivation Patterns of Superior Students Who Do and Do Not Achieve in High School." Report of research performed for U. S. Office of Education, University of Chicago, 1959. (Mimeographed.)
33. Pippert, Ralph, and Archer, N. Sidney. "A Comparison of Two Methods for Classifying Underachievers with Respect to Selected Criteria," *Personnel and Guidance Journal*, XLI (May, 1963), 788-91.
34. Roth, Robert M. "The Role of Self-Concept in Achievement," *Journal of Experimental Education*, XXVII (June, 1959), 265-81.
35. Shaw, Merville C., and Alves, Gerald J. "The Self-Concept of Bright Academic Underachievers: Continued," *Personnel and Guidance Journal*, XLII (December, 1963), 401-03.
36. Shaw, Merville C., and Brown, Donald J. "Scholastic Underachievement of Bright College Students," *Personnel and Guidance Journal*, XXXVI (November, 1957), 195-99.
37. Shaw, Merville C., Edson, Kenneth, and Bell, Hugh M. "The Self-Concept of Bright Underachieving High School Students as Revealed by an Adjective Check List," *Personnel and Guidance Journal*, XXXIX (November, 1960), 193-96.
38. Sherriffs, Alex C. "Modification of Academic Performance through Personal Interview," *Journal of Applied Psychology*, XXXIII (August, 1959), 339-46.
39. Stover, William G. "Factors Related to Underachievement of High School Students." Unpublished Ed. D. dissertation, Stanford, 1956.
40. Sturgis, Horace W. "The Relationship of the Teacher's Knowledge of the Student's Background to the Effectiveness of Teaching." Unpublished Ph. D. dissertation, New York University, 1958.
41. Whiteis, U. E. "Poor Scholarship in College," *Harvard Educational Review*, XXXII (Winter, 1962), 3-38.
42. Williams, Byron B., *et al.* "Identifying Factors Relating to Success in School." Rochester, New York: New York State Education Department, 1962. (Mimeographed.)
43. Wolfle, Dael L. "Diversity of Talent," *The American Psychologist*, XV (August, 1960), 535-45.